

# PROFESSOR BIRBAL SAHNI : HIS TWENTY-EIGHT YEARS AT THE UNIVERSITY OF LUCKNOW

A. R. RAO

Department of Botany & Geology, University of Lucknow

**D**R. BIRBAL SAHNI was appointed as Professor of Botany at the University of Lucknow in 1921. The university had just then been inaugurated and the botany laboratory consisted of just three rooms, part of the Biology Department of the old Canning College which was till then affiliated to the Allahabad University. The teaching staff numbered three including Prof. Sahni. Immediately after assuming charge Prof. Sahni revised the B.Sc. course and organized the post-graduate and honours classes. The first batch of M.Sc. students took their final examination in 1923. He used to teach almost all the subjects of their course to the B.Sc. students, but confined himself to the groups Pteridophytes, Gymnosperms, morphology of Angiosperms and Genetics, so far as the M.Sc. classes were concerned. Gradually, more rooms were added and the staff also was increased. But the increasing number of students, both in the postgraduate and undergraduate classes, left little room for teachers and it was not till 1933 that Prof. Sahni had a room of his own. He used to sit in the botany museum which was then partitioned off from the zoology museum by a row of almirahs which constituted the departmental library! An adjoining room, which was nothing more than an enclosed verandah and too hot in summer for anybody to sit in, housed his valuable collection of reprints. I well remember the visit of Sir Philip Hartog to the department. On being shown round the department he casually asked, "Where does Prof. Sahni work?" He was shown a table in the corner of the museum and he immediately exclaimed, "What! Prof. Sahni has no room of his own?" Then he added smilingly, "Yes, great scientists have worked only in garrets."

The years 1924-27 were the most formative period of the department which was growing in size, strength and equipment. Two members of the teaching staff, the late Dr. S. K. Mukerjee and Prof. H. P. Chow-

dhury, had just returned from England after advanced studies, and with their knowledge of the more recent developments in their respective subjects, the teaching of botany in the department was being reorganized on more modern lines and a lasting foundation laid for research. Prof. Sahni always believed that the junior classes should be handled to a certain extent by the seniormost teachers. This makes for better discipline, balanced and methodical tuition, and provides inspiring and correct guidance to the young and impressionable students. So he always insisted on his lecturing to the B.Sc. classes and sharing the undergraduate class practical work also along with the junior members of the staff. His junior colleagues, it is needless to say, learnt quite a lot from him even in these classes.

Prof. Sahni's lectures to the undergraduate classes were exceedingly simple in style and direct in approach — at first stressing the obvious and important facts and then gathering in the details. But he never missed telling them briefly the latest developments or failed to refer to work in progress in India. He made his B.Sc. lectures far more academic than they usually are. In the practical classes, too, he rarely left the room but was always busy correcting drawing books, explaining some difficult point or giving some tips about methodical and accurate practical work. With a word of praise to the diligent and a sarcastic rebuke to the idler he used to make even the unwilling students work briskly. Rarely, if ever, did he lose his temper in the class-room. His teaching of the postgraduate classes was fundamentally different in nature, although here, too, he adopted the same direct and simple style. He used to teach the Pteridophyta, Gymnosperms, and morphology of Angiosperms and Genetics until recently. Owing to increased research responsibilities he latterly confined himself to the first two groups in which he was

an accredited authority. He would in his lectures give as much information as he could pack in the time at his disposal. Each group was dealt with thoroughly and comprehensively. All references to previous work and work in progress—particularly in India, all possible problems awaiting research—were mentioned. Gifted with a phenomenal memory he could reel out references almost to the page without looking at his lecture notes which invariably contained all the latest references. Controversial theories were discussed from all aspects and without prejudice to any view. Being himself a specialist in palaeobotany and with so much palaeobotanical work in progress in the department, it is no wonder if the course in fossil botany was quite heavy. In the practical classes the postgraduate students had perfect liberty. He left the students to work as and when they pleased, with the help, of course, of a junior colleague. But he regularly examined their work and never minced words if criticism was called for. The good and hard-working student readily attracted his attention and received ample encouragement inside and outside the classroom. His lectures, to whatever audience addressed, were characterized by a remarkably simple and lucid style, direct and accurate expressions and attention to details. Correct accent, a perfect command of the language and a pleasant voice added to the charm of his lectures. Prof. Sahni had two very important qualities necessary for a good teacher of biology—a profound and comparative knowledge of his subject and wonderful powers of delineation. He would illustrate his lectures on the blackboard as rapidly as he was talking without missing any details. Was it any wonder, then, that gifted with such remarkable abilities Prof. Sahni was considered an ideal professor and his name drew crowds seeking admission to the botany classes, particularly the postgraduate classes which, during his lifetime, were representative of the whole of India?

Prof. Sahni the teacher was easily eclipsed by Prof. Sahni the researcher. Research was the one dominating passion of his life. It was the key-note of his teaching. He expected the same unfaltering devotion to science from his students as he himself tendered. His guidance not only produced good results but also developed in his students a sense of responsibility, self-

confidence and induced a love for accurate and methodical work. He expected every one of his students to take up research in some subject or other. To the student of palaeobotany he would offer a wide range of problems after having sized up his abilities and potentialities. Once the problem was selected, he would overwhelm the scholar with literature, material and guidance. As in teaching, so in research he emphasized hard and careful work, accuracy and attention to details. "Hard work killed no body" was a frequent saying of his. He liked intensive work on any problem more than extensive work. He was indeed a hard task master but he was hardest to please when the writing part of the thesis was concerned. The papers would go into the crucible several times before they emerged out in a satisfactory form! He was exceedingly critical in the examination of the students' work and could very quickly and fairly judge its real merits. He always insisted on looking at one's own results from the opposite point of view. He discouraged lengthy and pedantic style of presentation and always commended a logical and direct statement of facts. I have often heard him quote Dr. D. H. Scott whom he admired very much, "Know what you have to say and say it straight". The late Prof. Seward—his own *guru*—and Prof. T. G. Halle were the other people to whose papers he would always allude as models of careful and accurate work. He was very meticulous about illustrations and insisted on their being as perfect as possible. He was very particular about research scholars collecting their own material with complete field notes and even photographs. Often when the scholar was feeling fed up with his problem, owing to slow progress or due to the unpromising nature of the material, he would cheer him up and give him another more promising problem. Change of material, like change of occupation, was in his opinion a kind of rest. He insisted on all his students learning German and at one time he himself used to teach German to the postgraduate classes after college hours twice a week. He himself could speak fluently in German and French. He was always impressed by originality and initiative in the research students and advised them to give the widest publicity to their work by circulating

reprints of their papers and contacting other workers in the same subject not only by correspondence but also by meeting them at the various scientific assemblies. He himself had a worldwide correspondence and exchange of reprints and his collection was easily one of the best in the East. Attending regularly almost all the international gatherings of botanists, he never failed to draw attention to work done in India. He was never so happy as when mentioning his students' work. Often his junior collaborator got more than his mead of praise. Even the laboratory assistant or the man who ground fossils was gracefully thanked. Numerous students and young workers scattered over the country will bear testimony to the generous and prompt help they received from him in the matter of advice, literature and material.

Prof. Sahni had long been feeling that research students in palaeobotany did not have the necessary geological background for their investigations. He was of opinion that a student who had studied both botany and geology would make a better palaeobotanist. With this end in view he worked hard for the inauguration of the Department of Geology in the university in 1943. He was the head of this department also and used to teach dynamic geology and palaeobotany. Indeed it was a surprise to many how a geology department had not been in existence in a university where so much of palaeobotanical work was being done. Prof. Sahni made up for this by invariably giving a few introductory lectures on stratigraphical geology to the postgraduate students before they started their regular morphology course. He also introduced a special paper in palaeobotany for the M.Sc. examination and latterly accepted for research under him only those candidates who had taken up this special paper.

Although he admired academic merit, he was not unmindful of the importance of character and discipline. Always solicitous about the health and academic success of his students he never failed to keep a watchful eye on their moral development.

Prof. Sahni, curiously enough, did not take any student formally for research till 1932, although a number of colleagues including myself were working under his guidance on some problem or other. Work

was all that mattered to him, not degrees. A number of students were, however, admitted into the Ph.D. classes in 1933. Since then there was a continuous stream of students working under him. No less than 16 students have obtained their doctorate under him between the years 1933-1949; five of them D.Sc. and eight Ph.D. Of these, two worked on the morphology of living plants and the others on palaeobotany. Prof. Sahni disliked the old practice of Indian material being sent abroad for work. He often used to express that Indian material should be worked out in India itself and should not be allowed to go out except for presentation and comparison purposes. He has, on more than one occasion, strongly expressed himself in favour of agitating for the return of Indian material — particularly the type specimens, etc., which had been transferred to the British Museum from India.

Prof. Sahni was an excellent boss. It was a pleasure to serve under him. His appreciation of hard and honest work spurred his assistants to greater efforts. His treatment of his colleagues — particularly the juniors — was characterized by remarkable courtesy, grace and freedom from snobbery and officiousness. During my twenty years of service under him I cannot remember his having summoned me to his room even once! Whenever he wanted my services he would invariably walk into my room. This was indeed his practice with everybody in the department.

In 1932 the Government of United Provinces sanctioned a grant of Rs. 4,000 to enable him to purchase for his department a fossil-cutting machine and other accessories. This made it possible for the department to turn out larger amount of work in shorter time. The U.P. Government also sanctioned in 1933 a special post of Research Assistant to Prof. Sahni — a post which has continued since then.

Prof. Sahni encouraged research not only in his own special field of botany but in every branch of science. One could not speak to him for a few minutes without being drawn into some research topic. It was in no small measure due to his sympathetic encouragement that apart from Palaeobotany, research in Ecology, Mycology and Bryology also progressed in the department.



His love of research and desire to encourage it found expression in his instituting a research prize in the name of his father — the "Ruchi Ram Sahni Research Prize" — awarded every year for the best piece of botanical research done by a postgraduate student in the Department of Botany. Prof. Sahni's monthly allowances as the Dean of the Faculty of Science constituted the funds from which this prize was drawn.

Prof. Sahni was unanimously elected as the Dean of the Faculty of Science in the year 1933 — a position which he occupied with ability and distinction till his death.

Within these twenty-eight years during which he presided over this department Prof. Sahni not only raised it to one of the foremost centres of botanical teaching and research in India, but also built up a school of palaeobotany which has attracted international attention. His own magnificent contribution to the science of botany has been as rich as it is varied. No single botanist in India has contributed so much to botany as Prof. Sahni did in his all too brief a lifetime.

It is not for me to review his scientific work here. But I will content myself by mentioning the main outlines of work which was done in this department under his guidance and the more important of his own research achievements.

Prof. Sahni's work on living plants included genera like *Nephrolepis*, *Nipholobolus*, *Taxus*, *Fitzroya*, *Dacrydium*, *Cephalotaxus* and some specially interesting plants of the southern hemisphere like *Psilotum*, *Tmesipteris* and *Acmopyle*. His studies on these have considerably increased our knowledge of their structure, affinities, geographical distribution and points of evolutionary interest. Further, his study of the rare New Caledonian erect species of *Tmesipteris*, *Tm. Vieillardii* Dan. emphasizes the primitive nature of the plant and its affinities with the Devonian *Asteroxylon* and the Lycopodiales in general. The vascular anatomy of the shoot apex and middle part illustrate the Phytomic and leaf-skin theories of the stem.

His detailed study of the New Caledonian and Fijian *Acmopyle Pancheri* Pilger brought out certain characters which distinguish it from the genus *Podocarpus* to which it was once referred. The most important

amongst these are the secondarily acquired erect posture of the seed, the complete fusion of the epimatium with the integument and the peculiar, cup-like, vascular structure of the seed, probably the best developed amongst the conifers. On these criteria Prof. Sahni concluded that the genus is the most highly specialized amongst the Podocarpaceae. Discussing allied theoretical points he favoured the brachyblast theory of the morphology of the ovuliferous scale and was inclined towards a Cordaitalean ancestry of the conifers, the Cordaitales themselves having probably in common with the Pteridosperms, a megaphyllous ancestry. His first important contribution to fossil botany was a series of papers on the branching system of the Zygopterideae. Then followed a number of papers on several important genera of this complicated and most interesting group of Palaeozoic ferns, like *Clepsydroopsis*, *Asterochlaenopsis*, *Austroclepsis*, *Zygopteris*, etc. His paper on *Asterochlaenopsis*, formerly regarded as a *Clepsydroopsis*, is an example of his careful and critical study. So far back as 1919 he had suggested that *Asterochlaena* (*Clepsydroopsis*) *kirgisica* described by Stenzel and *Rachiopteris Ludwigi* Leuckart and Schenk described by Schenk were probably different parts of the same stem. During his European tour in 1930 Prof. Sahni compared the type specimens of these two and also their other fragments in thin sections and found that his forecast was not only correct but also that the stem now designated *Asterochlaenopsis* was an interesting link between *Asterochlaena* and *Ankyropteris*. It had "Clepsydroopsis-like petiolar strands with a leaf trace sequence resembling that of *Asterochlaena* and *Ankyropteris*". The leaf trace further showed structural similarities with those of *Zaleskya* and *Thamnopteris* at the place of its departure.

The new generic name *Austroclepsis* was instituted by Prof. Sahni for a Southern Zygopterid formerly known as *Clepsydroopsis australis* E. M. Osborn sp. and which had Clepsydroopsis-like petiolar bundles and stem stele and leaf trace sequence corresponding to that of *Ankyropteris Grayi*. Further, adventitious roots bound together the leaf-bearing axes as in the genus *Tempskya*.

His examination of a *Psaronius* specimen from Chemnitz led to the discovery of a

definite and compact periderm-like tissue on the outer border of the inner root zone. Prof. Sahni concluded from this that the compact inner root zone is truly intracortical.

Prof. Sahni's work on Indian fossil plants dates back to the year 1920 when, in collaboration with the late Prof. A. C. Seward, he revised the Indian Gondwana plants. On his return to India he did a lot of spadework by critically reviewing all the previous work on Indian fossil plants, listing all known genera and species in stratigraphical tables, the homotaxial relationships of the different strata and the vertical distribution of the different genera. He drew attention to the preponderance of conifers and cycadophyta in the upper Gondwana flora of India and the occurrence of Cordaitales, Equisetales and Glossopterids in the lower Gondwana floras. He pointed out the gaps in our knowledge of the Gondwana flora and urged an intensive study of the same, more from the botanists' point of view. The rest of his own life was dedicated to the study of Indian fossil plants. Meanwhile he also became the consulting palaeobotanist to the Geological Survey of India who used to send him material for investigation.

The hitherto unexplored field of Indian Gondwana flora naturally received his first attention. He at first concentrated on the *Glossopteris* flora and the rich and classical flora of the Rajmahal Hills in Bihar. Subsequently he turned his attention to the more recent floras of India.

His work on the Indian lower Gondwana floras deals mostly with the study of the structure and distribution of species of *Dadoxylon* and *Glossopteris*, and some important theoretical papers dealing with the antiquity of the *Glossopteris* flora, its relation to glaciation and the Permo-Carboniferous life provinces.

The upper Gondwana flora of India offered a rich field for his study. The Jurassic flora of the Rajmahal Hills yielded to him several interesting types of which two deserve special mention — *Homoxyylon rajmahalense* Sahni and *Williamsonia Sewardiana* Sahni. The former was a homoxyulous wood devoid of true vessels and bearing anatomical resemblances with the wood of fossil Cycads on the one hand and the wood of the Magnoliales on the other. To elucidate this point further

he studied the wood of *Zygogynum*, *Tetracentron*, *Trochodendron* and *Drimys*. The Magnoliales in their floral organization and to a certain extent in their cuticular features resemble the Bennettitales and the discovery of wood resembling that of the Bennettitales raises the point as to whether the Magnoliales and Bennettitales had a common ancestry if not actually related. *Williamsonia Sewardiana* is the most completely known Indian fossil Cycad with a stem of the *Bucklandia indica* type, leaves of *Phyllophyllum cutchense* kind and female fructifications similar to those known as *Williamsonia scottica*. The columnar stem had a Cycas-like habit and bore vegetative buds.

Prof. Sahni had by this time gathered round him a number of enthusiastic scholars and the Rajmahal flora was being worked out by a team of workers. Meanwhile petrified material had also been discovered at Nipania in the Rajmahal Hills, and some of us were entrusted with the investigation of this material and correlating the already known impressions with the new petrifications. This yielded several interesting types like the dimorphic stem, *Pentoxylon Sahni* Srivastava, a fleshy gymnospermous cone, *Carnoconites compactum* Srivastava and silicified specimens of the leaf *Taeniopteris spatulata* McCl. (now known as *Nipaniophyllum Raoi*). While the stem and cone are unique amongst Gymnosperms, the leaves combine characters of the Cycadales and the Bennettitales. Prof. Sahni studied the relationships of these three different types of plant fragments with each other and placed them all under a new group of Gymnosperms — the Pentoxyleae — in a recent paper — which, alas, turned out to be his last research publication.

From the Cretaceous sandstones of Himmatnagar he described, for the first time from India, the two important xerophytic fossil ferns: *Matonidium* (*M. indicum* Sahni) and *Weichselia reticulata*. These, along with other plant remains, constitute what is probably the only Cretaceous land flora known to us from India and corresponding to the Wealden of Europe.

The rich and exquisitely preserved Deccan intertrappean flora next attracted his attention. He and his collaborators described from these beds several very interesting plant fragments including fungal hyphae,

algal spores, fern sporangia, etc. Specially worth mentioning are *Azolla intertrappea* Sahni & H. S. Rao, — a fossil representative of the modern genus of the same name and *Chara sausari* Sahni and S. R. N. Rao, *Sausarosperrum*, etc. *Rodeites dakshinai* Sahni, remarkably like the sporocarps of the modern South American aquatic fern *Regnellidium*, was another interesting find. From the same beds Prof. Sahni described *Enigmocarpon Parijai* Sahni, a dicotyledonous silicified fruit probably belonging to the Lythraceae, Gymnosperm cones *Takliostrobus alatus* and *Pityostrobus crassitesta*, etc. He also described a large number of petrified palm fruits and stems, mostly from the Deccan intertrappean beds, and described several new species of *Palmoxylon*. He had instituted in the department a detailed study of living palm stems for comparison and intended to write an exhaustive monograph on Indian fossil palms.

His two important monographs on Indian fossil conifers, published in *Palaeontologia Indica* series of the Memoirs of the Geological Survey of India, are the result of his reinvestigation of the large number of fossil conifers preserved at the Indian Museum, Calcutta, and some of which had already been described by Feistmantel, Seward, Zeiller and others. Prof. Sahni's own observations on these fossils have added considerably to our knowledge of their structure, affinities and vertical range.

One of Prof. Sahni's most often quoted papers of theoretical interest is the one "On the ontogeny of vascular plants and the theory of recapitulation". In this paper he pointed out several examples amongst vascular cryptogams, gymnosperm seeds and angiosperm flowers, to show that the well-known biological principle, "Ontogeny tends to repeat phylogeny", occurs in plants also and more widely, too, than was hitherto suspected. His own observations in this connection on the axes of *Tmesipteris Vieillardii* Dan., on the filicinean stele and on the evolution of the complicated leaf traces of the Zygopterideae from a fundamentally clepsydroid stage are very interesting indeed.

Another theoretical paper of his and of great interest to palaeobotanists is the one entitled "The Southern Fossil Floras". Herein he made a comparative study of the fossil floras of the various components

of the Gondwana continent and listed the various genera of fossil plants and their vertical distribution. He undertook this investigation with a view to find out how far palaeobotanical evidence supported the Wegener hypothesis of drifting continents.

Prof. Sahni initiated another line of research which till then had not received in India the attention it deserved. This was the study of plant cuticles — living and fossil. He himself added to our knowledge of the cuticles of *Glossopteris angustifolia* and *Ptilophyllum*.

Yet another line of research initiated by him was the study of spores and other microfossils. Indeed, this field of study provided material for several monographs and doctorate theses.

Although Prof. Sahni's study of fossil plants was at first mainly directed towards its strictly botanical aspect, he was not unaware of its bearing on the study of stratigraphical geology. This aspect of study began to receive his attention increasingly in recent years. From a study of the Deccan intertrappean flora he was able to assign a definitely Eocene age to these plant-bearing beds. The large number of palm stems, fruits, monocot leaves, dicot fruits and flowers, several cryptogamic remains exactly like modern genera, all supported his claim for an Eocene age for these beds. He also recognized at once the importance of the occurrence in the same beds of the petrified palm fruit *Nipadites hindi* remarkably like its modern counterpart *Nipa fruticans* — an inhabitant of tropical estuaries. The inference naturally is that Mohgaon Kalan, where these fossils were discovered *in situ*, marked an Eocene estuary, possibly on the southern border of the great Tethys sea. The occurrence of a Cretaceous land flora in India was brought to our notice by his study of *Matonidium indicum* Sahni, *Weichselia* and other fossil plants from the Himmatnagar sandstones.

So far back as 1936 he pointed out enough palaeobotanical evidences in the Karewa deposits of Kashmir to support the Pleistocene upheaval of the Himalayas. Quite recently, on the basis of their microfossil contents, he adduced an Eocene age to the Saline Series of the Punjab Salt Range, which were till recently regarded as Cambrian. The importance of this controversy can be judged



from the fact that it formed the subject of two symposia held under the joint auspices of the Indian and National Academies of Sciences, India. Two special symposia numbers of the Proceedings of the National Academy of Sciences were also issued on the subject. These controversies apart, it cannot be denied that Prof. Sahni was not only the pioneer in instituting in India the study of microfossils for their own sake, but was also one of those who vindicated the value of fossil plants and microfossils in the study of stratigraphical geology.

A perusal of his "Recent Advances in Indian Palaeobotany", an address to the Botany Section of the Jubilee Session of the Indian Science Congress in 1938, will show briefly the amount of work done on Indian fossil plants after Ottokar Feistmantel and most of this work was done under Prof. Sahni's guidance and inspiration if not under his very supervision at the University of Lucknow.

Just before his death he was engaged on a study of some Devonian plant remains from Spiti, some of the Palaeozoic tree-ferns like *Tubicaulis*, *Ankyropteris*, *Psaronius* and some of the Deccan intertrappean fossils like *Cyclanthodendron Sahni*, *Sausarospermum Fermori* and *Nipadites* sp.

Prof. Sahni served the cause of Indian science by associating himself with practically every important learned body in some capacity or other. He was the founder member and later on the President of the Indian Botanical Society and served on its editorial board. He was twice President of the National Academy of Sciences. He had also been: Fellow and Vice-President of the Indian Academy of Sciences, Fellow and Vice-President of the National Institute of Sciences, Fellow of the Asiatic Society of Bengal, Vice-President of the Indian Association for the Cultivation of Science, a member of the court of the Indian Institute of Science, Bangalore, a member of the Provincial Agricultural Research Council, representative of the Inter-University Board on the Imperial Council of Agricultural Research, member of the Scientific Manpower Committee, member of the Committee for Measurement of Geological Time and member of the Scientific Consultative Committee. In his long association with the Indian Science Congress, he was its General President in 1940 and presided twice over the Botany Section and once over the Geology

Section. He represented India at the Scientific Conference convened by the Royal Society in 1945. He was deputed by the Government of India in 1947 to tour Europe and America for studying the various laboratories and centres of research. He was an Honorary Professor of Botany in the Banaras Hindu University and delivered the Sukhraj Ray Readership lectures at the Patna University and the Gaekwad lectures at Baroda. In 1939 he organized a small committee of palaeobotanists in India and with their help issued a yearly report entitled *Palaeobotany in India*, containing in brief the result of palaeobotanical investigations in different parts of the country. He founded the Institute of Palaeobotany and became its first Director in 1946.

He was the recipient of the Barclay Medal of the Royal Asiatic Society of Bengal in 1936, the Nelson Wright Medal of the Numismatic Society of India in 1945 and the C. R. Reddy National Prize in 1947. The Universities of Allahabad and Patna had conferred on him the degree of Doctor of Science (*Honoris Causa*).

Prof. Sahni received international recognition for his work very early. He was awarded the Sc.D. of Cambridge in 1929. He was the Vice-President of the Palaeobotany Sections of the 5th and 6th International Botanical Congresses in 1930 and 1935 held at Cambridge and Amsterdam respectively. In 1936 he was elected a Fellow of the Royal Society of London. He was also a Fellow of the Geological Society of Great Britain and served on the editorial board of the international botanical journal *Chronica Botanica*. After his lecture tour in America in 1947-48, he was elected a Corresponding Member of the Botanical Society of America, an Honorary Foreign Member of the American Academy of Arts and Sciences, and as one of the Vice-Presidents of the International Palaeontological Union. He had also been elected an Honorary President of the International Botanical Congress held at Stockholm in 1950.

Prof. Sahni had a unique personality — a rare combination of genius with grace and personal charm. His unflinching courtesy, cheerfulness, keen sense of humour, sincerity, frankness, robust optimism, helpfulness, promptitude, warmth of friendship, profound knowledge of his subject, humility and a modesty that almost affected ignorance, all contributed to the building up of a personality

that was as much loved as it was respected. Intensely national in spirit he was remarkably broadminded and had an international outlook in scientific matters. Indian science has indeed suffered a grievous loss in the passing away of this ardent patriot and distinguished botanist.

Prof. Sahni's deep attachment and love for Mrs. Sahni and her constant interest in his work and welfare were to us the ideal of a real partnership in life. He received the greatest encouragement, help and support

from her — a rare privilege — which he has acknowledged repeatedly.

I am extremely grateful to the editorial committee of *The Palaeobotanist* for giving me an opportunity to pay my humble tribute to the memory of my illustrious teacher with whom I had the good fortune of being associated for twenty-two years and at whose feet I was privileged to learn not only the elements of palaeobotany, but also many of the fundamental virtues of life and scientific research.